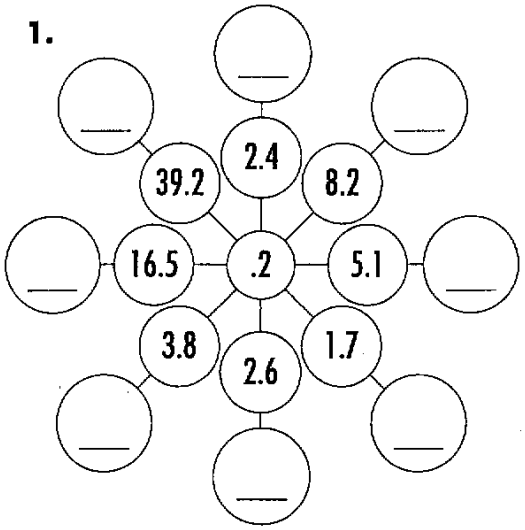
Name _____

Mentally Adding Tenths

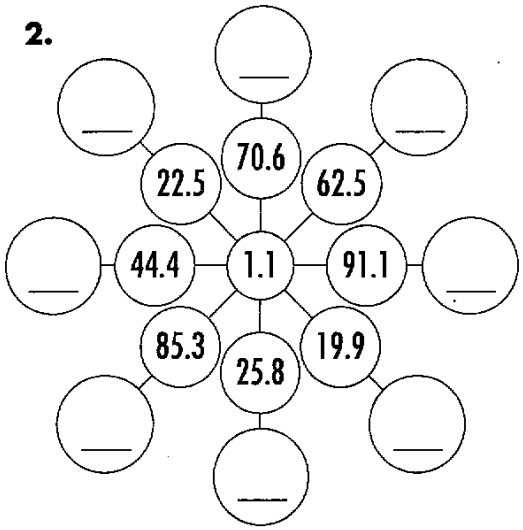
Add the center decimal to each decimal around it. Write the answer on the line in the connecting empty circle. *The strategy is to think the renaming or carrying step.*

EXAMPLE: 9.7 + .5 **1.** .7 + .5 = 1.2
Think .2
2. Increase 9 by 1. 9 → 10
3. The answer is 10.2.

1.



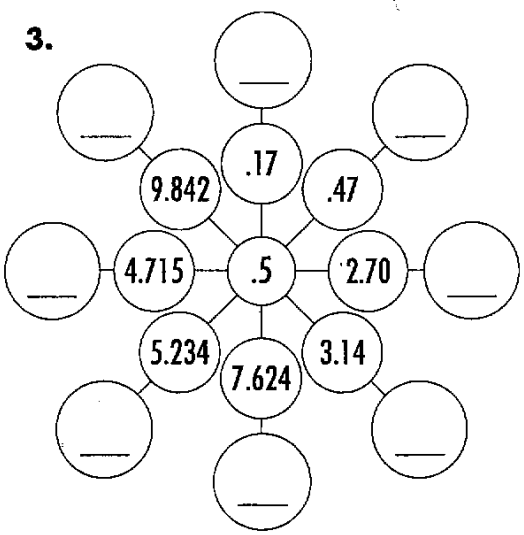
2.



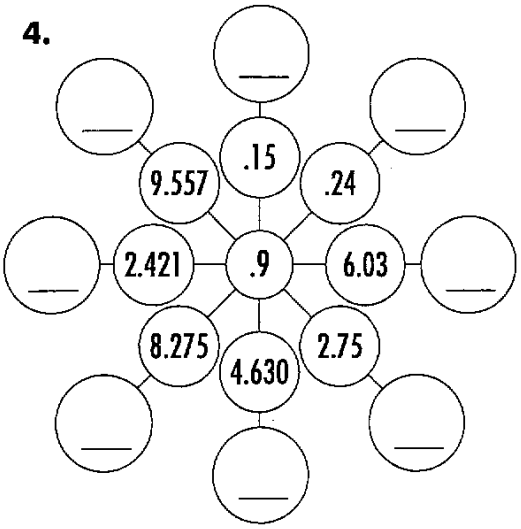
The strategy below deals only with the tenths places in both decimals.

EXAMPLE: .9 + 5.83
1. .9 + .8 = 1.7
Think .7
Adding .9 has no affect on the decimal places to the right of the tenths.
2. Increase the 5 by 1. 5 → 6
3. The answer is 6.73.

3.



4.



Name _____

Counting Forward by Decimals

Count forward by the number given at the left of each row. The number with which you begin counting is given.

Remember the *strategy* is to **THINK** the addition by adding the same decimal places and automatically taking care of any renaming or carrying. See the example below.

> .2 + 3.9 **THINK** .2 + .9 yields a .1. Increase the 3 by 1.

	.2	.7,	.9,	1.1,	1.3,	1.5,	1.7.
1.	**.3**	.2,	_____,	_____,	_____,	_____,	_____.
2.	**.4**	1.3,	_____,	_____,	_____,	_____,	_____.
3.	**.5**	1.4,	_____,	_____,	_____,	_____,	_____.
4.	**.6**	3.4,	_____	_____,	_____,	_____,	_____.
5.	**.7**	5.8,	_____,	_____,	_____,	_____,	_____.
6.	**.8**	4.3,	_____,	_____,	_____,	_____,	_____.
7.	**.9**	2.1,	_____,	_____,	_____,	_____,	_____.

Name _____

Mentally Adding Hundredths and Thousandths

Add the decimal at the beginning of each line to each decimal to the right. Write the answer on the line below.

1. .2	.35	.463	2.545	5.4	7.863
	_____	_____	_____	_____	_____
2. .002	.391	6.2077	5.3567	2.939	2.460
	_____	_____	_____	_____	_____
3. .05	.623	9.718	3.2763	8.4043	.6853
	_____	_____	_____	_____	_____
4. .005	2.967	7.766	4.833	2.397	.6853
	_____	_____	_____	_____	_____
5. .09	.006	1.04	2.111	4.583	9.921
	_____	_____	_____	_____	_____
6. .009	3.157	.4245	6.408	3.3556	1.7281
	_____	_____	_____	_____	_____

Name _____

Counting Backward by Decimals

Count backwards by the number given. The number with which you begin counting backwards is given.

*The strategy is to **THINK** the subtraction by subtracting the endings and automatically taking care of any renaming or borrowing. See the example below.*

6.3 - .4 **THINK** .4 from 1.3 yields .9. The 6 becomes 1 less, or 5.

EXAMPLE: Count backwards by .2:
5.8, 5.6, 5.4, 5.2, 5.0, 4.8, 4.6, 4.4, 4.2, 4.0, 3.8, 3.6

1. Count backwards by .3:

7.0, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____

2. Count backwards by .4:

4.7, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____

3. Count backwards by .5:

9.3, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____

4. Count backwards by .6:

8.7, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____

5. Count backwards by .7:

15.3, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____

6. Count backwards by .8:

20.5, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____

7. Count backwards by .9:

19.1, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____

Name _____

Using Money to Subtract Decimals Mentally

Our money system is a decimal system. THINK of subtracting decimals as you would THINK of subtracting money *mentally*. The subtraction is much *easier without* resorting to borrowing or renaming.

EXAMPLE: 5 - 1.75 **Think** $5.00 - $1.75.
→

Subtract the decimal from the number in the IN column.
Write the answer in the OUT column.

1. **Subtract .25**

IN	OUT
.75	.50
1.50	1.25
3.50	
4.75	
5.00	
6.25	
4.35	
3.40	

2. **Subtract .50**

IN	OUT
5	
4.25	
3.75	
6.5	
7.0	
6.6	
4.80	
3.65	

3. **Subtract 1.50**

IN	OUT
10	
4	
3	
2.75	
4.25	
5.50	
1.6	
2.8	

4. **Subtract .75**

IN	OUT
1.00	
2.0	
3.75	
4.50	
1.25	
6.80	
3.90	
2.86	

Name _____

Instant Decimal Subtraction

You will be able to do the following more quickly than you think.

1 - .476	10 - 6.573	10.000 - 6.287	1.0000 - .4683	100.00000 - 34.67892

* Review **INSTANT SUBTRACTION** of whole numbers on page 36. The same principles apply to decimals.

* Remember complements? Each digit in the answer is derived by adding the digit to be subtracted to "some" number that gives you 9. The exception is the digit furthest to the right. It must be added to "some" number to get 10.

The examples below will refresh your memory.

1 - .437 = ? Change to the following form: 1.000
- .437

The answer is: 4 + ? = 9
3 + ? = 9
7 + ? = 10

1.000
- .437
.563

Subtract the decimals below using your newly learned *quick* method.
NOTE: In 10.000 notice where you need to end thinking 9 and begin 10.
- 5.440

1. 1.00
- .38

2. 1.000
- .826

3. 1.
- .351

4. 10.
- 4.7

5. 10.00
- 5.13

6. 10.000
- 2.924

7. 10.
- 6.4324

8. 100.0
- 37.4278

9. 10 - 3.7245 = _____

10. 100 - 76.44821 = _____

11. 10.000
- 7.360

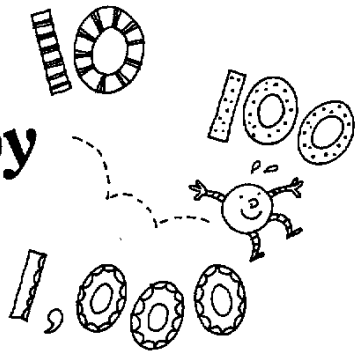
12. 1.0000
- 5610

13. 100.00
- 83.40

14. 1,000.0
- 620.0

Name _____

Multiplying Decimals by 10, 100, and 1,000



Look at the examples below. Do you see a pattern?

10 x .6 = 6	10 x 2.4 = 24	10 x 45.136 = 451.36
100 x .6 = 60	100 x 2.4 = 240	100 x 45.136 = 4,513.6
1,000 x .6 = 600	1,000 x 2.4 = 2,400	1,000 x 45.136 = 45,136

Did you notice that multiplying:

* by 10 moved the decimal point one place to the right?
* by 100 moved the decimal point two places to the right?
* by 1,000 moved the decimal point three places to the right?

The rule is simple: *Move the decimal point to the right for each zero in 10, 100, or 1,000.*

Fill in the space below with 10, 100, or 1,000 to make true equations.

1. .3 x _____ = 3

2. _____ x .14 = 1.4

3. .25 x _____ = 250

4. 3.7 x _____ = 37

5. .92 x _____ = 92

6. _____ x 1.17 = 11.7

7. _____ x 3.9 = 390

8. _____ x 26.133 = 2,613.3

9. 123.050 x _____ = 1,230.5

10. _____ x .687 = 687

11. _____ x 23.005 = 2,300.5

12. _____ x 87.2314 = 872.314

Multiply *mentally*.

13. 10 x 3.24 = _____

14. 4.5 x 10 = _____

15. 100 x .67 = _____

16. 5.12 x 1,000 = _____

17. 399.7 x 1,000 = _____

18. .621 x 1,000 = _____

19. .008 x 10 = _____

20. .9210 x 1,000 = _____

21. 100 x 7.6215 = _____

22. 983.0 x 100 = _____

23. 1,000 x .4563 = _____

24. 10 x .9114 = _____

25. 10 x .01 = _____

26. 10 x .0110 = _____

27. 1,000 x .01447 = _____

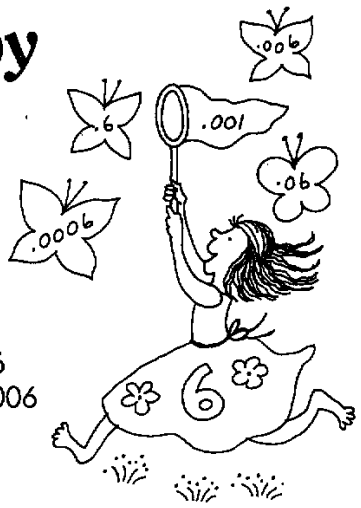
28. 1,000 x .1 = _____

29. 100 x .43 = _____

30. 100 x .45 = _____

Name _____

Multiplying Decimals by .1, .01, and .001



Study the examples below to find a pattern.

6 x 1 = 6	.6 x 1 = .6
6 x .1 = .6	.6 x .1 = .06
6 x .01 = .06	.6 x .01 = .006
6 x .001 = .006	.6 x .001 = .0006

Did you notice that in each *answer*:

* there is **6**, the number with which you started?
* the number of decimal places is equal to the total number of decimal places in the two factors?

Do the following multiplication *mentally*:

1. 7 x .1 = _____

2. 9 x .01 = _____

3. .9 x .1 = _____

4. 2.5 x .1 = _____

5. 2.5 x .01 = _____

6. .23 x .01 = _____

7. .23 x .001 = _____

8. .415 x .01 = _____

9. 41.5 x .01 = _____

10. 415 x .01 = _____

11. .1 x .1 = _____

12. .01 x .1 = _____

13. .01 x .01 = _____

14. .001 x .01 = _____

15. .001 x .001 = _____

16. .0001 x .35 = _____

17. .01 x .006 = _____

18. .0023 x .1 = _____

19. .004 x .2 = _____

20. .005 x .02 = _____

21. .01 x .03 x .02 = _____

22. .06 x .007 x .01 = _____

23. .45 x .02 = _____

24. 3.25 x .03 = _____